



**THE MODERATING EFFECT OF BANK SIZE ON THE RELATIONSHIP BETWEEN FINANCIAL DISTRESS FACTORS
AND FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN KENYA**

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ABSTRACT

*The Central Bank of Kenya advised commercial banks to take precautions for the growth of banking industry. In Kenya Imperial Bank and Chase Bank were placed under liquidation due to liquidity problems. CBK established performance of Banks whereby 8 Banks obtained a negative ROA as a result of poor investments. The main objective of this research was to establish the moderating effect of Bank size on the relationship between financial distress factors and financial performance of Commercial Banks in Kenya. This study was guided by pecking order theory. The study used a cross sectional but descriptive survey design on 39 commercial banks incorporated under census survey. Secondary data results were retrieved from annual financial statement reports of Kenyan Commercial Banks. This study would help Commercial Banks stakeholders in enabling performance. Panel data was used and hypothesis test at a significance level of 0.05. Descriptive analysis included; skewness, kurtosis and jarque bera while inferential analysis involved correlation analysis. The study ensured that the assumptions of linear regression based on normality test and linearity were tested. The data was presented in form of tables and models. The results were that incorporation of (IV*MV) thus interaction terms moved R squared from 0.4705 to 0.4774. The change was of $P=0.007$ hence significant. This small increase implied that firm size interaction had no moderating effect on the relationship between financial distress factors and financial performance of Commercial Banks. Furthermore, the insignificance arising on earlier significance variables after introduction of interaction term confirmed that firm size has no moderating effect on the dependent and independent variables. The study therefore accepted the null hypothesis that firm size has no significant moderating effect on the relationship between financial distress factors and financial performance of Kenyan Commercial Banks. It was recommended that bank's need to ensure that their asset grows and find at what point their sizes.*

Key words; Commercial Banks, Financial Distress Factors, Performance

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INTRODUCTION

Financial distress factors are elements that make entities to struggle financially. The Central Bank of Kenya (2017) established that the total nonperforming loans rose by 27.2% from 2019 to 2020 sending wrong signals. There were several factors cited by Central bank of Kenya (2017) to be key contributors of nonperforming loans. The delays by government entities in payments and the retarded growth of business during the 2017 elections negatively affected loan performance. According to CBK (2020) the financial sector, Building and construction sector, Energy, water sector, and Agricultural sector had the highest increase in nonperforming loans. For these scenarios the covid 19 situation, excess rainfall hence unpredictable weather conditions, unbalanced cash inflows and outflows were the key contributors of NPLs.

Financial distress factors for this case comprises of liquidity distress factor, capital adequacy distress factor and asset quality distress factor, they affect financial performance of Banks (Thorley, Perry, & Andes, 2012). Various factors lead to financial distress. Financial distress factors vary basing on the age of the organization; to some level in old organizations differ from young entities. This study bases on liquidity, capital adequacy and asset quality financial distress factors. Companies of financial distress perform poorly compared to those with low distress level (Kariuki, 2017).

According to Gitman (2016) packages financial performance as the relationship of time, money and existing risks. Basel Committee on Banking Supervision, (2013) magnifies liquidity as financial performance tool for Banks. Reddy and Prasad (2011) have applied capital adequacy, asset quality and liquidity on banks in India signaling positive findings. This study incorporated Return on asset for efficiency of the firm on the management point of view (Mwaura, 2015). Return on Asset is a ratio attained through assessment of net income to total assets for banks. It is evident that a higher Return on asset signals good financial performance

(Olweny & Themba (2011). Financial performance of a bank helps investors, customers and other users of financial information the going concern concept (Kariuki, 2019).

Statement of the Problem

The size of a bank is resourceful since tier one banks pay less due to the allocation of their fixed cost and they are in a position to capture a large market share. Central Bank report (2016) indicates that Dubai Bank, Prudential Bank, Trust Bank, Euro Bank and Charterhouse Bank collapsed asset base factors.. Thirteen listed firms at NSE have totally faced financial distress forcing some to be suspended from NSE (NSE, 2020). Contradicting findings on financial distress factors and financial performance of Banks were reported. Studies have indicated that financial distress factors had a positively significant influence on performance of Banks (Sporta, 2019) as (Njue, 2020) noted that it had a significantly negative influence though Irungu (2019) noted it had no influence. The current study covered a longer period of 7 years (2014-2020) and involved all commercial Banks to ascertain the moderating effect of Bank size on the relationship between financial distress factors and performance of Commercial Banks in Kenya.

Objectives of the Study

This study determined the moderating effect of Bank size on the relationship between financial distress factors and financial performance of Commercial Banks in Kenya. The study was guided by the following research hypothesis;

- **H₀₁:** Bank size has no significant moderating influence on relationship between financial distress factors and financial performance of Commercial Banks in Kenya.

LITERATURE REVIEW

Theoretical Literature Review

It was brought to book by Majluf and Myers (1984). It ascertains that organizations prefer own source funding based on firms profits or sell of assets to outside funding. In a scenario where an organization require outside funding it opts to begin

with borrowing rather than sale of assets commonly referred as equity. This means that equity emerges as the last option. Equity entails sale of assets in return for capital as debt deals with lending which is associated with tax benefits.

The organization takes conservatism as its strength when opting the dividend payment, furthermore uses debt financing to attain the goal of value maximization. The Pecking order theory suggest that organizations have a particular way it prefers order for capital used to budget their business (Myers & Majluf, 1984). The theory elaborates essence of cash management that mitigates the effect of financial distress. The pecking order theory incorporates bank size by ascertaining the financing options in relation to asset base to undertake. It stands out as the greatest theory.

Conceptual Review

Commercial banks are categorized into large banks, small banks and medium banks hence a basis of firm size. This can be redesigned into Tier one as large banks with composite index of 5% , tier two as medium banks with index of 1% to 5% and tier three as small banks with index of less than 1%. In 2020, Tier one banks were 9 in total in Kenya commanding a 23.1% market share, 9 Tier two banks commanding a 23.1% market share and 21 Tier three banks commanding 53.8% market share (CBK, 2020). This study measured firm size using natural logarithm of assets while financial performance was measured using ROA.

Return on Asset shows the management capacity to get the deposit at save cost and put resources into high beneficial investment. As per Sporter *et al* (2019), high ROA demonstrates the more corporate proficiency of the utilization the assets. This ratio communicates the amount one dollar of assets produces the net income. The organization is increasingly beneficial when return on asset is high. Return on assets communicates the corporate productive management to produce the net income from institutional assets (Khrawish, 2011).

Empirical Review

According to Nyabaga and Wepukhulu (2020) noted that firm size is a vital firm characteristic aspect. When banks are large in size they are advantageous since they can attain larger amounts of deposits compared to smaller Banks hence good financial performance. Furthermore this illustrates that Banks ought to control the deposits since they have ultimate effect on the Banks performance. Sporta *et al*, (2019) computed bank size by use of natural logarithm of assets whereby they obtained the list of assets for banks and later obtain the logarithm figure with a view of eliminating the problem of small and large numbers.

It is not automatic that when a firm is large it affects financial performance positively since one needs to put in mind that when a firm grows costs also increases and verse versa hence scholars have got mixed findings on firm size factor. Niresh and Velnampy (2014) noted that size of a firm does not influence firms performance. According to Myers, (2010) bank size is directly related to financial performance and therefore the bigger the firm the greater the performance. This findings are a contradiction of Javaid, Anwar, Zaman, and Gafoor (2015) who ascertained that a big firm makes an organization to realize more costs which affects liquidity negatively. This studies concentrates on firm size in relation to performance but the current study is focused on establishing its moderation on other factors. The above findings is based on firm characteristics and not financial distress factors so it fails to mention the dependent variables of my study based on capital adequacy, asset quality and liquidity and how they affect performance. These studies fail to show all elements that constitutes to measuring firm size.

Wangige, Simiyu and Atheru, (2016) identified firm size as a firm characteristic factors that played a role on financial distress and only a positive association existed between bank size and performance. The author provided that bank size is a factor that is significant in deciding the financial performance of an entity. The investigation utilized secondary data from the yearly reports and

examined utilizing a pooled Ordinary Least Square model. Firm size was estimated utilizing asset's natural log while financial performance was estimated by ROE and ROA. The connection between assets natural long and financial performance was positive and significant and therefore bank size influenced financial performance positively significant. This study measured bank size by utilizing the asset logarithm. The higher the asset the large the bank and the more productive an organization and the other vice versa is also true. The above findings is based on firm characteristics and not financial distress factors so it fails to mention the dependent variables of my study based on capital adequacy, asset quality and liquidity and how they affect performance. This studies fail to show all elements that constitutes to measuring firm size.

Nyabaga and Wepukhulu (2020) cross-examined the influence of company attributes on NSE financial performance of quoted firms for an eight year period of 2010 to 2018. The commercial bank attributes investigated were capital structure, quality of assets, size of bank and adequacy of capital and ROE. STATA soft ware was used and both descriptive and inferential approach was used. The study found that all the attributes positively affected performance positively even on firm size. The above findings is based on firm characteristics and not financial distress factors so it fails to mention the dependent variables of my study based on capital adequacy, asset quality and liquidity and how they affect performance.

Accordingly a research conducted by Musundi (2018) on the influence of firm size on bank profiteering in Kenyan. This study was based on 44 Kenyan commercial banks for a 10 year period of 2008-2017. The independent variables under size were liquidity risk, leverage, funds owned by shareholders, deposits done by customer deposits as well as loans given out by loans were noted to be of positive influence on performance of Banks. This study also found that size of bank is ascertained through proper assessment of number of

customers, number of bank branches and number of assets. The above findings is based on firm attributes and not financial distress factors so it fails to mention the dependent variables of my study based on capital adequacy, asset quality and liquidity and how they affect performance.

Mboi, Muturi and Wanjare (2018) established moderating influence of firm attributes on financial performance of large enterprise listed NSE. Using secondary data, a population of 60 large businesses listed was involved for a 6-year period of 2011 to 2016. The firm attributes studied were firm size and age of a firm. Theoretical underpinning based on cash flow, pecking order, trade-off theories were employed. Statistical approach was through descriptive and inferential. Furthermore a Multiple regressions and Pearson moment correlation were used The null hypothesis on firm size and firm age were reject two attributes on firm performance. Return on equity was the key measure for firm performance. This study concentrates on firm size in relation to performance but the current study focused on establishing its moderation on other factors. The above findings is based on firm attributes and not financial distress factors so it fails to mention the dependent variables of my study based on capital adequacy, asset quality and liquidity and how they affect performance. These studies fail to show all elements that constitutes to measuring firm size.

Khrawish (2011) antecedents of performance of Jordan commercial banks for a 10 year period thus 2000–2010. The relationship between the agent and the principal was well illustrated under agency theory as the main theory. The study used descriptive survey design, random sampling technique, agency theory used to ascertain performance of these companies. The current study will use other variables liquidity, capital adequacy and asset quality unlike Competition, board size and capital structure as used before, current study will use liquidity theory, pecking order and cash management theory unlike agency theory, this

study will adopt STATA soft ware on analysis unlike SPSS used by former study.

Halkano (2019) conducted a study on financial factors affecting firm performance of Kenyan Islamic and conventional banks, for a period 2015-2018, from selected banks using financial ratios. The study Adopted quantitative research design, it covered 3-year period and statistical panel data. The findings were that Liquidity risk and capital structure had a positive influence while asset quality, firm size has a negative role Commercial banks performance in Kenya. This research was limited to a smaller area of which this study will handle a broader area. Variables under study were displayed as management factors and not financial distress factors. The current study addressed liquidity as a variable and incorporates firm size as a moderator, which this study failed to handle.

Mule, Mukras and Nzioka (2015) carried out a study on firm size effect performance of Kenyan commercial Banks using a causal research design and applied census survey. It was noted that firm size had no influence on financial performance of banks due to small increase in R squared vale. Asset turnover ratio was used to measure size as follows; total sales value/average of total assets thus $(\text{total sales}/(\text{Beginning assets} + \text{Ending assets}/2))$. The current study used natural logarithm of assets. This study also found that size of bank is ascertained through proper assessment of number

of customers, number of bank branches and number of assets. The above findings is based on firm attributes and not financial distress factors so it fails to mention the dependent variables of my study based on capital adequacy, asset quality and liquidity and how they affect performance.

A empirical study by Macharia (2016) on Central bank regulatory attributes to Kenya commercial bank performance emphasized on Bank size as a positive attribute towards performance as its asset base counted a lot. However for Njoroge, (2016) in ascertaining the profiteering of Kenyan commercial banks found that that bank size had a negative insignificant relation to profiteering since on employing its influence it made some variables that were positive to go negative. The above findings is based on firm attributes and not financial distress factors so it fails to mention the dependent variables of my study based on capital adequacy, asset quality and liquidity and how they affect performance.

Conceptual Framework

Figure 1 presents the researcher’s conceptualized approach where independent variable is financial distress factors based on liquidity, quality of asset and adequacy of capital. Financial performance is the dependent variable measured by return on assets (ROA). The influence of firm size as a moderating variable was also tested.

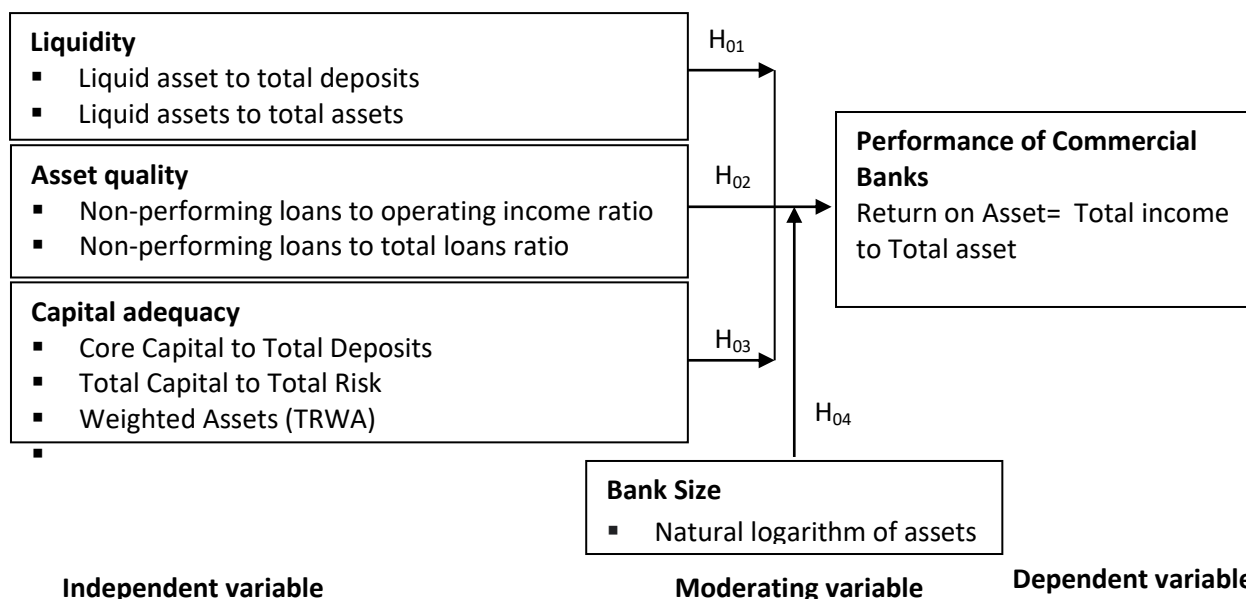


Figure 1: Conceptual Framework

METHODOLOGY

This study adopted descriptive correlation survey research design to collect and analyze which helps to test hypothesis. Secondary data from CBK reports was used for a 7 year period (2014-2020). This data was obtained from CBK bank supervisory reports. Natural logarithm of bank assets was the measure for bank size. The regression models used for both standard multiple and hierarchical multiple was as follows:

With moderating variable;

$$ROA_{it} = \alpha + \beta_1LQ_{it} + \beta_2AQ_{it} + \beta_3CA_{it} + \beta_4LQFS_{it} + \beta_5AQFS_{it} + \beta_6CAFS_{it} + \epsilon_{it}$$

Where:

ROA_{it} = Return on assets for 2014 - 2020

α = Determines the level of fitted lines

$\beta_1, \beta_2, \beta_3$ and β_4 = Regression coefficient

LQFS_{it} = Measures of liquidity multiplied by firm size for 2014 - 2020

AQFS_{it} = Measures of Asset Quality multiplied by firm size for 2014 - 2020

CAFS_{it} = Measures of Capital Adequacy multiplied by firm size for 2014 - 2020

ϵ_{it} = Error term

RESULTS AND DISCUSSION

Descriptive Statistics and Normality

This was ascertained through skewness, kurtosis and Jacque bera

Table 1: Descriptive Statistics Results

Variable	Skewness	Kurtosis	Jarque Bera adj chi2(2)	Prob>chi2
LN:CC_TD	-1.3668	11.5496	916.5	-0.199
LN:TC_TRWA	0.0648	5.2480	57.67	-0.130
LN:LA_TA	-0.8963	5.5712	111.8	-0.250
LN:LA_TD	-0.1886	7.4575	227.6	-0.500
LN:NPL_OI	-0.0080	3.2255	0.5813	0.7478
LN:NPL_TL	0.3708	5.1019	56.51	-0.1300
LN:FS	-1.0019	4.5972	376.2	-0.8200
LN:ROA	-0.8089	8.5188	74.69	-0.170

Source: Field data (2022)

LN is Natural Log, CC-Core Capital, TD-Total Deposit, TC-Total Capital, TRWA-Total Risk Weighted Assets, LA-Liquid Assets, TA-Total Assets, NPL-Non Performing Loans, OI-Operating Income, TL-Total Loans, ROA-Return on Assets, FS-Firm Size.

A dataset is symmetric if it looks the same to the left and right of a center point measured while Kurtosis is a measure of whether the data are peaked or flat relative to a normal distribution. A distribution is considered normal if the values of Skewness and Kurtosis are equal to zero. CC_TD, LA_TA, LN:LA_TD, LA_TD, LN:NPL_OI, LN_FS, and LN_ROA are skewed negatively with only TC_TRWA and NPL_TL being skewed positively. According to Monte-carlo rule a figure less than 2 for skewness and less than 6 for kurtosis termed normal. Similarly figures between 2.0 and 3.0 for Skewness and

between 6.0 and 21.0 for kurtosis are termed non-normal. According to Tabor, (2011) there are some cases where there exists an extremely non normal scenario when figures are more than 3 for Skewness and more than 21 for kurtosis. With above skewness of between -1.3668 to 0.3708 they are very normal. The implication of negative skewness of natural log of return on asset is that commercial banks reported a reduction in performance during 2014-2020 period. Kurtosis recorded 3.2255-11.5496 where most of measures were normal with exception of CC_TD, LA_TD and ROA. For Jarque-Bera test the values for probability were less than 0.05 hence rejecting normality was rejected with an exception of NPL_OI that had a value of 0.7478. According to Oztuna, Elhan & Tuccar, (2006) generally a normality of 30 to 40 should not raise eyebrows for a statistical data of which the above findings didn't surpass.

Correlation Matrix

Table 2: Correlation Analysis

VARIABLES	LN:CC_TD	LN:TC_TRWA	LN:LA_TA	LN:LA_TD	LN:NPL_OI	LN:NPL_TL	LN:FS
LN:CC_TD	1.0000						
LN:TC_TRWA	0.6354	1.0000					
LN:LA_TA	0.1737	0.1194	1.0000				
LN:LA_TD	-0.0148	0.0517	0.2016	1.0000			
LN:NPL_OI	0.1572	0.1672	0.1538	0.0001	1.0000		
LN:NPL_TL	0.1297	0.2463	0.0864	0.0718	0.5435	1.0000	
LN:FS	-0.0540	-0.0461	-0.168	-0.0527	-0.3326	-0.1619	1.0000
LN:ROA	0.0738	0.4478	0.0053	0.3856	0.0000	0.0074	
	-0.0149	0.0071	0.1256	0.0075	-0.5717	-0.0716	0.2630
	0.0467	0.0470	0.0382	0.0500	0.0000	0.2386	0.0000

Source: Field data (2022)

Correlation analysis was applied to test the link between independent and dependent variables. The results are as shown in Table 2, which revealed that there was no high correlation among the independent variables (capital adequacy, liquidity and asset quality). Therefore, this showed that there didn't exist multi-collinearity as correlation coefficients were less than 0.9

The relationship between liquidity and return on asset (0.1256 for LA-TA was positive and weak), (0.0075 for LA-TD was positive and weak). The relationship between Asset quality (-0.5717 for NPL-OI was negative and strong) and (-0.0716 for NPL-TL was negative and strong). On the hand, the relationship between capital adequacy (-0.0149 for CC-TD was negative and weak), (0.0071 was positive and weak). A study by Meeme (2015) compliance of Basel III by banks agrees with the current study on liquidity and capital adequacy but disagrees on asset quality findings.

The results indicated that there is a significant positive relationship between return on asset and liquidity distress (LA-TA) shown by $P=0.0382$ (P less than 0.05). Furthermore results indicated that there is a positive significant relationship between return on asset and liquidity distress (LA-TD) shown by

$P=0.500$ ($P=0.05$). This concurs with Korir (2019) who investigated the effect of liquidity on financial performance of Commercial Banks. The study found a positive significance correlation between liquidity and ROA. Furthermore this agrees with Cheluget, Gekara, Orwa, and Keraro (2018) who established liquidity distress of insurance firms and found a positive relationship hence a financial distress factor.

The results indicated that a negative but significant association on ROA and asset quality (Non Performing Loan-Operating Income) shown by $P=0.0000$ (P less than 0.05). The results are in disagreement with Sporta, Ngugu and Simuyu (2019) who examined the influence of financial distress factors of banks found a positive significant association for quality of assets and ROA thus disagreeing findings of this research. Return on asset and asset quality (NPL-TL) had a negative association supported by $P=0.2386$ (P less than 0.05) which further disagrees with Sporta *et al* (2019).

The results indicated a significant negative association return on asset and capital adequacy (CC-TD) supported by $P=0.0467$ ($P<0.05$). The results are in disagreement with Olongo (2017) who

found significant positive association between adequate capital and ROA. Furthermore for the second measure of capital adequacy the results indicated that there existed significant positive

association (TC-TRWA) as indicated by $P=0.0470$ ($P<0.05$). This further concurs with Olongo (2017) who found a significant positive association between adequate capital and ROA.

Moderating effect of Bank Size on Financial Distress Factors and Performance

Table 3: Moderating effect of Bank Size on Financial Distress Factors and Performance

Model	R2	F(df)	p	R2 change	F(df) change	p
1:	0.461	37.981(6,266)	0.000			
2:	0.470	33.634(7,265)	0.000	0.009	4.529(1,265)	0.034
3:	0.477	18.197(13,259)	0.000	0.007	0.570(6,259)	0.754

Source: Field data (2022)

The incorporation of (IV*MV) thus interaction terms moved R squared from 0.4705 to 0.4774. The change was of $P=0.007$ hence significant. This small increase implied that firm size interaction had no moderating effect on the relationship between financial distress factors and financial performance of Commercial Banks. Furthermore, the insignificance arising on earlier significance variables after introduction of interaction term confirms that firm size has no moderating effect on the dependent and independent variables. The study therefore accepted the null hypothesis that firm size has no significant moderating effect on the relationship between financial distress factors and financial performance of Kenyan Commercial Banks. This finding agrees with Osore, Nyang'au and Ngacho (2018) who revealed that the size of firm had no significant effect on financial distress on financial performance of manufacturing firms listed at Nairobi Security Exchange. Furthermore, Wangige, Simiyu, also obtained similar results and Atheru (2016) who showed that bank size had no significant moderate effect on the association of financial distress factors and performance of Kenyan Commercial. Further the results of this study also contradicts with those of Nyabaga and Wepukhulu (2021) who explored the firm characteristics and financial performance of Listed Banks in Kenya during 2010-2018 financial years. The study established that size of the firm has a

significant relationship with financial characteristic and performance of listed companies.

CONCLUSION AND RECOMMENDATIONS

On establishing the moderating effect of firm size on the association of financial distress factors and performance of Kenya Commercial Banks. The study concluded that firm size has significant positive moderating effect on association between financial distress factors and performance of Kenya Commercial Banks though with a small increase as shown by hierarchical analysis. An increase in firm size results to significant increase on the effect of liquidity, quality of assets and adequacy of capital on performance. Large Banks experience greatest effect of liquidity, capital adequacy and asset quality as compared to smaller firms. The small increase and the role of interaction term on significance indicated bank size has no moderating effect. This study found some evidence that size of the firm is significant moderate variable, therefore, firms need to ensure that their asset grows and find at what point their sizes.

Suggestions for Further Research

This study examined Kenyan Commercial Banks. A study on firm size can be done in other financial entities; secondly, firm size can be approached as an independent variable as this study investigated its moderating role.

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